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ABSTRACT

This document, the fourth in a series of student financial aid research reports, focuses on need analysis in student financial aid. Nearly all of the family contribution expected by the analysis of ability to pay is produced by family income, and the Congressional Methodology implemented for the 1988-89 academic year places even greater emphasis on income and less on assets than did the Uniform Methodology which it replaced. Student financial aid policy, funding, and administration are affected by growth in the proportion of poor families in the population during the last two decades. A growing proportion of financial aid applicants and college freshmen are poor. Increasingly, the poorest college students are concentrated in public two-year colleges with very few attending public and private universities during the last decade. Matching of the family income profile against college attendance costs through need analysis finds that more than four out of five children would require financial assistance to be able to attend college today, even the least costly college, with less than 1 in 10 able to attend an average cost private college without financial aid. Results are detailed in narrative, graphic, and tabular form in sections on the following topics: (1) family income, (2) impact of the family income shift on aid applicants, (3) college enrollment shifts by family income, and (4) college attendance costs and expected family contribution. Eleven figures and eight tables are appended. Contains 18 references. (SM)

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ACT Student Financial Aid
Research Report Series 89-1

Family Income, Children, and Student Financial Aid

Thomas G. Mortenson

April 1989

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FAMILY INCOME, CHILDREN, AND STUDENT FINANCIAL AID

Thomas G. Mortenson

EXECUTIVE SUMMARY

Need analysis in student financial aid begins with a careful scrutiny of the ability of each aid applicant's family to finance college attendance costs from its own income and assets. Nearly all of the family contribution expected by the analysis of ability to pay is produced by family income, and the Congressional Methodology implemented for the 1988-89 academic year places even greater emphasis on income and less on assets than did the Uniform Methodology which it replaced.

However, poor families now constitute a larger share of all American families than they did when the current student financial aid system was designed in the early 1970s. The growth in the proportion of families that are poor, coupled with the increasing proportion of American children being raised in families living below the poverty level, has profound implications for American socioeconomic evolution. Student financial aid policy, funding, and administration are especially affected by the growth in the proportion of poor families.

The shifting American family income profile is already reflected in both the population of financial aid applicants and the population of American college freshmen. During the first half of the 1980s, a growing proportion of financial aid applicants were poor, and since the late 1960s an increasing proportion of American college freshmen are poor. Increasingly, however, the poorest college students are concentrated in public two-year colleges. Though never numerous, they have nearly disappeared from public and private universities during the last decade.

When the family income profile of American children is matched against college attendance costs through need analysis, more than four out of five children would require financial assistance to be able to attend college today--even the least costly college--under assumptions about ability to pay imbedded in need analysis. Fewer would be able to attend moderately priced colleges without financial aid. Less than one in ten would be able to attend an average cost private college without financial aid. While the American economy remains strong, these proportions will likely decrease somewhat in the future. When the economy deteriorates, however, as its cyclical history predicts it will, the proportion requiring financial aid will increase.

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FAMILY INCOME, CHILDREN, AND STUDENT FINANCIAL AID

Thomas G. Mortenson

Introduction

A redistribution of American families along the income spectrum has occurred since 1970: poor and affluent families are now larger proportions of all American families, and middle income families are a smaller proportion. This redistribution has profound implications for socioeconomic evolution in America generally, and more specifically for higher education.

The family income redistribution also has immediate consequences for student financial aid policy, funding, and administration. So long as families have first responsibility for financing the college attendance costs of their children from their own income and assets, shifts in the family income distribution will alter the expected family contributions that result from standardized need assessment. The amount of aid required to meet need, and to some extent the form of aid appropriate to meeting that need, will also be altered.

Until the Congressional Methodology (CM) became the standard for need assessment beginning with the 1988-89 academic year, family income, though important, played a somewhat lesser role in determining each family's expected contribution under the Uniform Methodology. The new CM has shifted the emphasis more toward current and future income, and away from assets, in determining expected family contributions. For example, special formulas specified in the Congressional Methodology for displaced homemakers and dislocated workers remove home equity from the calculation of resources available to finance college attendance costs. The shift in need assessment emphasis more heavily toward income and away from assets is shown in Table 1 for dependent ACT Family Financial Statement (FFS) aid applicants.

This paper first examines income in the United States since World War II in several ways. This examination first explores the redistribution of personal income among families, and the causes of this change. Then the discussion focuses on families with children, single mothers with children, young families with children, and the growth in child poverty rates. The second section of the paper examines data to see how these changes are reflected in the financial aid applicant population. The third section examines the distribution of financial aid applicants and college freshmen by family income across college type and control. The final section of the paper deals with college attendance costs and the financial resources of families to pay these costs, as determined through need analysis. Under the expectations of need analysis formulas and the judgments about ability to pay that they embody, the population of children requiring financial aid to attend different types of colleges is described.

TABLE 1

Average Expected Family Contribution
for Dependent ACT Family Financial Statement Filers
1980-81 to 1988-89

Academic Year	Parental Contribution							Student Contribution				
	Income		Assets		Adjst*		Total	Income		Assets		Total
Uniform Methodology												
1980-81	$ 879	62%	$ 377	27%	$ 168	12%	$1419	$ 605	84%	$ 116	16%	$ 721
1981-82	775	56	428	31	181	13	1384	750	86	118	14	868
1982-83	1041	59	506	29	226	13	1773	876	87	128	13	1004
1983-84	946	57	503	30	215	13	1664	840	86	135	14	975
1984-85	1247	63	522	26	218	11	1987	776	84	152	16	928
1985-86	1810	72	496	20	203	8	2509	757	82	171	18	928
1986-87	2068	74	509	18	201	7	2778	763	80	187	20	950
1987-88	2185	77	470	17	192	7	2847	759	80	190	20	949
Congressional Methodology												
1988-89	2420	86	286	10	99	4	2805	1801	90	211	10	2012

*Addition to negative parental contributions to bring them up to zero.

This paper uses Census Bureau definitions for families, children and income unless otherwise noted. A "family" is two or more people, related by blood or marriage, who live together. A "child" is less than 18 years of age. "Income" refers to the total of all sources of income, including earnings of all family members, and includes earned income, property income, and income transfers. "Poverty" is defined by the Social Security Administration as the money income required to maintain a minimum standard of living, and varies according to family size and age of householder. Poverty thresholds are recalculated each year based on inflation.

Family Income

Distribution of Families by Income

In 1970, American families were almost equally divided between three income groups: The first group of families had incomes above 125 percent of median family income for all American families; the second group had incomes of between 75 percent and 125 percent of median family income; and the third group had incomes below 75 percent of median family income. In this section we will refer to these three groups of families as affluent, middle income, and poor, respectively.

FIGURE 1
DISTRIBUTION OF AMERICAN FAMILIES BY INCOME
1947-1987

Source: Current Population Survey, Series P-60.

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Between 1970 and 1987 the proportion of families that had middle incomes declined from 32.2 percent to 25.6 percent of all families, as shown in Figure 1. The proportion of all families that were affluent increased from 34.5 percent to 38.3 percent. The proportion of poor families increased from 33.3 percent in 1970 to 36.1 percent in 1987--the largest proportion of poor families, according to the definition used in this paper, at any time since data were first collected in 1947.

Redistributional Causes

Several studies of the redistribution of American family income have appeared during the 1980s. These studies are extensive and analytical in their descriptions of family income redistribution, and theoretical in their interpretation of its many causes. They are also troubling in their implications for social mobility, business loss of middle income consumption, and for those concerned about fairness and social harmony. Because of the breadth of this literature, this paper will only summarize some of its major findings and interpretations. While these findings are treated independently in the following summary, they are usually interrelated in ways that complicate their understanding and solution.

A consistent finding across studies of labor markets is that relatively well-paid manufacturing jobs have been shipped overseas during the last two decades (Bluestone and Harrison, 1982; Kuttner, 1983; Thurow, 1985). The concentration of capital and technology in the United States after World War II led to the rapid expansion of manufacturing capacity and jobs. The wealth thus created was redistributed among American workers through government and union actions. The relatively affluent and large middle class thus created resulted in the further benefit of expanding domestic consumption markets for manufactured products.

Beginning about 1970, however, multinational corporations shifted manufacturing jobs overseas--a shift facilitated by the portability of technology and capital. The immobile American manufacturing worker was abandoned, with shrinking equivalent substitutes but expanding job opportunities in the lower paid service sector. As Professor Bluestone (1982) pointed out:

> "The pattern of wages in the old, mill-based economy looked just like a normal bell curve. It had a few highly paid jobs at the top, a few low-wage jobs at the bottom, and plenty of jobs in the middle. But in the new services economy, the middle is missing."

A second major force was the application of technology in domestic manufacturing. With the economic goal of efficient production of goods, manufacturers who did not seek cheaper labor overseas tried to replace expensive American labor with machines and processes that produced goods at lower cost domestically. This occurred as labor unions and governments were becoming weaker in their redistributive roles. The economic fruits of improved efficiency were not shared by labor, although owners and consumers derived short-term profits from this change (Kuttner, 1982).

Demographics provided another set of influences. The post World War II baby boomers arrived on the labor market just when the participation of women in the labor force was rapidly increasing. This massive influx of labor shifted the balance away from demand and toward supply--and when supply exceeds demand, prices fall. The labor market value of labor was thus depressed, unevenly as it turns out, but in ways that the the labor market is still adjusting to today. For families the gains in earnings resulting from working wives were substantially offset by losses in real earnings of husbands (Rose & Fasenfest, 1988).

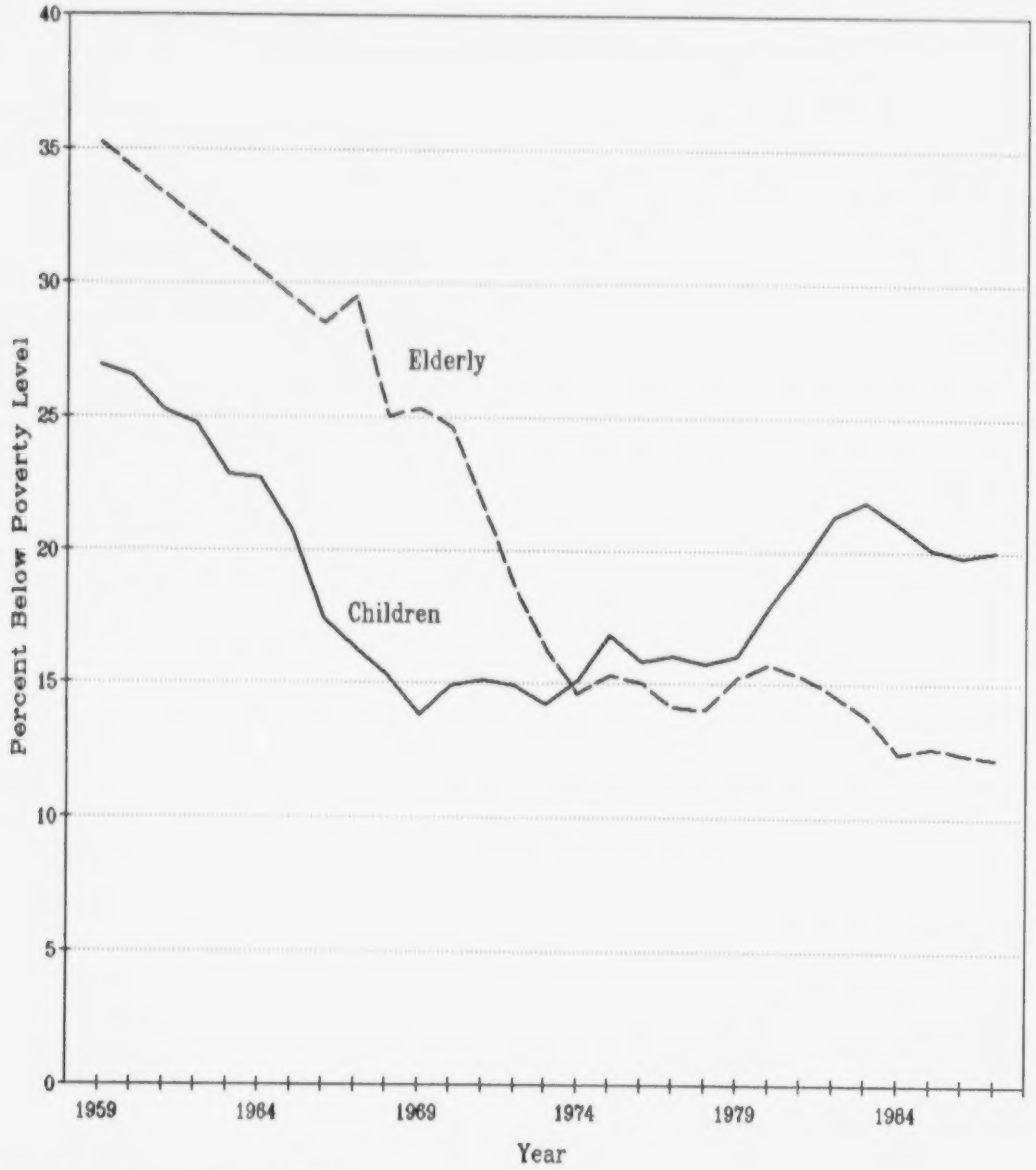
Another demographic dimension of family income redistribution, beyond baby boomers and female labor force participation rates, is the growth in female-headed families as a result of divorce and teenage unwed motherhood. Among families with children, married couple families still constitute 70 percent of the total. However, between 1970 and 1986, the number of married couple families with children has remained constant, year after year, at between 24 and 25 million, while the number of female headed families with children has increased from 3 million to nearly 7 million. As a result, by 1986 the proportion of female headed families had increased to 20 percent from 11 percent of the total in 1970. Since 1970 the only growth in numbers of families with children has occurred among families headed by single mothers (Congressional Budget Office, 1988).

This growth in female headed families has occurred at the low end of the family income distribution. Policies and programs that addressed the poverty of the elderly--and hence moved elderly families up the income scale--reduced the poverty rate of the elderly. In 1970 the poverty rate for the elderly was 24.6 percent. By 1986 it had dropped to 12.4 percent. As the elderly moved up the family income ladder, they were replaced at low income levels by young families and families headed by females with children. (See Figure 2.)

One family characteristic appears to apply broadly and distinguish among families moving up or down the income ladder, particularly during the 1980s: the educational attainment of the head. There exists a strong relationship between income and education that extends to families as well as individuals. Figure 3 shows median family income by householder--usually the head of the family--for 1987. These medians range from about $14,700 for families where the householder has less than 8 years of elementary education, to about $54,500 for families where the householder has 5 or more years of college.

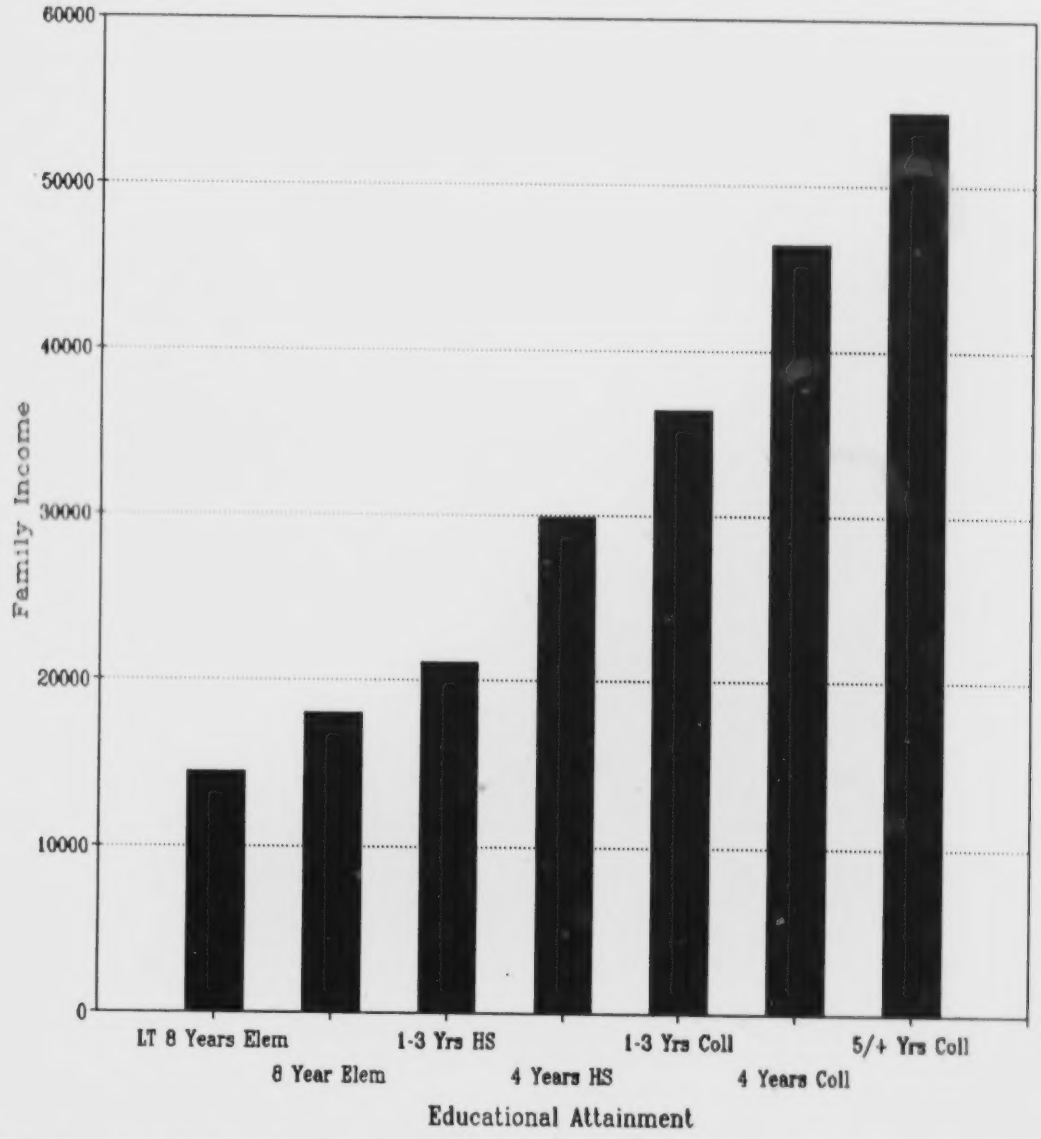
The relationship between income and education was fairly constant until 1980. Then, between 1980 and 1987, median family income adjusted for the effects of inflation increased for families headed by persons with at least some college, and declined mainly for families headed by individuals with lesser levels of educational attainment. These data are shown in Figure 4. The largest gains in real income--16 percent--were among families headed by individuals with five or more years of college education. The largest decline in real income--minus 5 percent--was in families headed by individuals with eighth grade educations.

FIGURE 2
POVERTY RATES FOR CHILDREN AND ELDERLY PERSONS
1959-1987



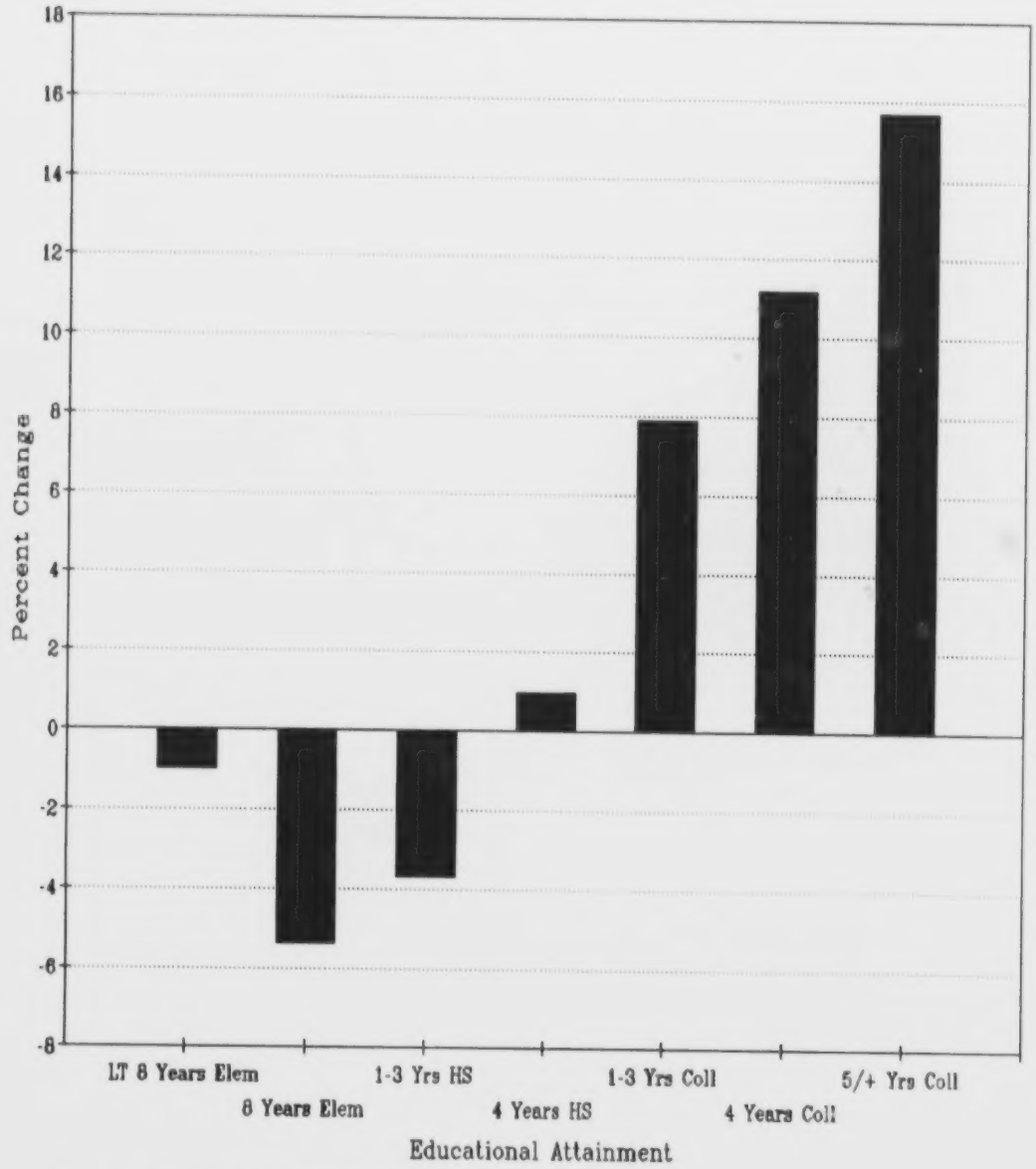
Source: Current Population Reports, Series P-60.

FIGURE 3
MEDIAN FAMILY INCOME BY EDUCATIONAL ATTAINMENT
OF HOUSEHOLDER, ALL FAMILIES, ALL RACES
1987



Source: Current Population Reports, Consumer Income, Series P-60.

FIGURE 4
CHANGE IN MEDIAN FAMILY INCOME BY EDUCATIONAL ATTAINMENT
BETWEEN 1980 AND 1987



Source: Census Bureau, Current Population Reports, Series P-60.

The numbers are even more striking when young families are examined. The Children's Defense Fund report shows that median family income for young families headed by college graduates increased between 1973 and 1986. However, median incomes fell by 17 percent for young families headed by high school graduates, and by 35 percent in young families headed by high school drop-outs. The poverty rate among this latter group of families increased from 29 percent in 1973 to 46 percent by 1986 (Johnson, Sums, & Weill, 1988).

Distribution of Children by Family Income

Using the Congressional Budget Office definition of "family," which includes elderly persons and households of unrelated individuals, in 1986 just 35 percent of all families had children living in them. However, excluding households of the elderly and unrelated individuals, the proportion of nonelderly families with children was 62 percent in 1986--down from 67 percent in 1970 due to the growth in the number of families without children. Currently about 34 million American families include children. The remainder of this paper is limited to discussions of families with children.

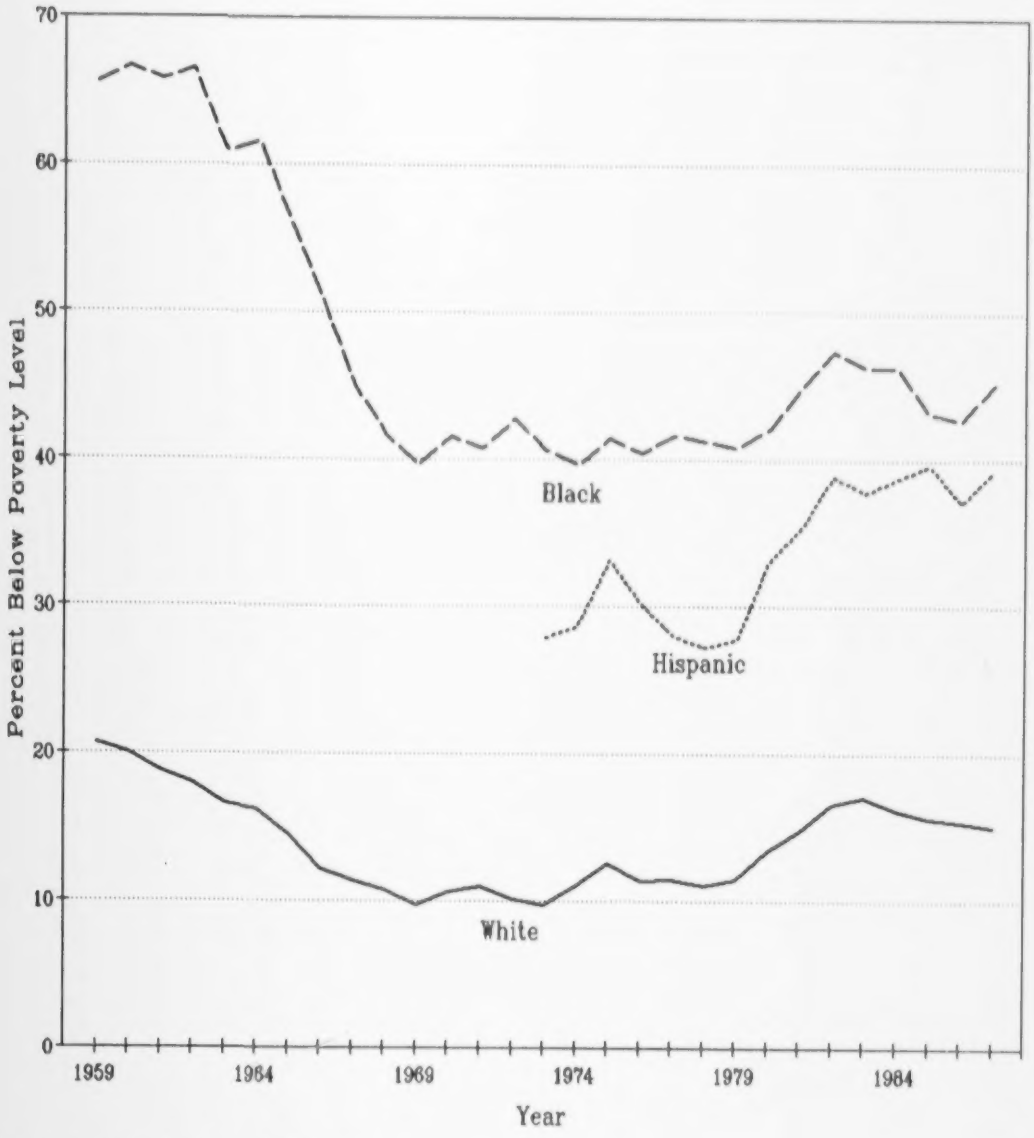
Poverty. In 1986 there were about 62 million children in the United States; of these, 12.3 million were living in poverty. (By comparison there were about 12.5 million undergraduate and graduate students enrolled in American higher educational institutions.) About one in five American children lived in poverty in 1986. These rates are somewhat higher in the South than in the rest of the country, and considerably higher for blacks (42.7 percent) and Hispanics (37.1 percent) than for whites (15.3 percent). By race, the largest number of children living in poverty is for whites at 7.7 million.

During the 1960s, the United States made significant progress in reducing the proportion of its children who lived in families below the poverty level--from 26.9 percent in 1959 to 13.8 percent by 1969. These years coincide with the period when domestic social programs proposed by Presidents Kennedy and Johnson constituted the federal War on Poverty. During this ten-year period, the child poverty rates for whites declined from 20.6 to 9.7 percent, and for blacks from 65.5 to 39.6 percent. These rates are shown in Figure 5.

Since 1979, the proportion and numbers of American children living in families with incomes below the poverty level has increased. Between 1979 and 1987, the child poverty rate increased from 16.0 to 20.0 percent, and the number of children living in poverty increased from less than 10 million to about 12.5 million. For white children the poverty rate increased from 11.4 to 15.0 percent, for black children from 40.8 to 45.1 percent, and for Hispanic children from 27.7 to 39.3 percent. In the cases of whites and Blacks, the 1987 data were below the peaks reached about 1982 during a period of economic recession.

The Children's Defense Fund study of young families reveals a more bleak picture. Between 1973 and 1986 the child poverty rates among children in young families increased from 21 percent to 35 percent. Young families with children were seven times more likely to be in poverty in 1986 than were young families without children (Johnson, Sums, & Weill, 1988).

FIGURE 5
CHILD POVERTY RATES BY RACE\ETHNICITY
FOR CHILDREN UNDER 18 LIVING IN FAMILIES
1959-1987



Source: Current Population Reports, Series P-60.

Children by Family Income Levels. Most children above the poverty level live in families that will require financial aid to be able to attend college, a theme developed more completely in a later section of this paper. Here, however, we want to examine briefly the distribution of children across families of different income levels.

Figure 6 shows the distribution of America's 62 million children by level of family income and parental structure of the family. About 47 million children live in married couple families. Another 13 million live in female headed families without a husband present. About 2 million children live in other families, such as families headed by a male with no wife present.

FIGURE 6

Distribution of Children by Family Income and Parents' Status
1986

The female headed households are concentrated toward the lower end of the income distribution and had a median family income of $9,467 in 1986. The proportion of all children being raised in this kind of family situation has increased steadily, from 16.9 percent in 1976, to 18.6 percent in 1980, to 20.6 percent by 1986. This trend shows no signs of abating.

Married couple families, in contrast, had median family incomes of $33,023. While 76.6 percent of all children were being raised in this family type in 1986, a decade earlier in 1976 81.5 percent of all children were in married couple families. This trend too shows no signs of abating.

Impact of the Family Income Shift on Aid Applicants

Evidence from several sources suggests that the redistribution of families by income has affected the characteristics of college students generally and financial aid applicants in particular.

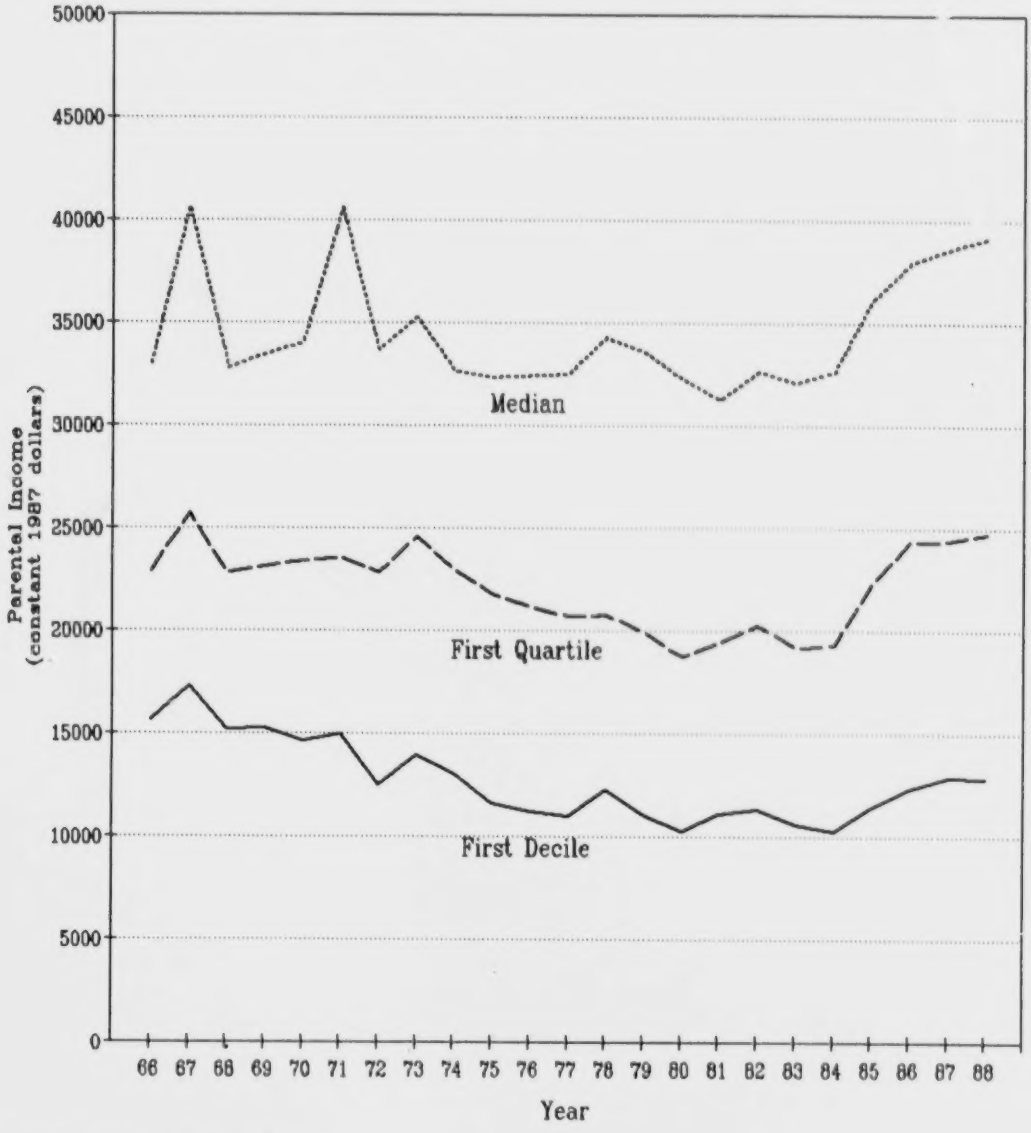
National College Freshmen Norms

For more than two decades, the American Council on Education and the University of California at Los Angeles (Cooperative Institutional Research Program) have monitored the characteristics of American college freshmen through an annual survey. The reports from this survey provide descriptive information including the family income characteristics of first-time, full-time college freshmen. The 1983 report noted the following:

> The incomes of the students' parents showed unusual trends in the 1983 survey. While the percentage of families earning high incomes ($40,000 or more) went up (from 24.9 to 26.9), the percent earning low incomes (less than $12,500) also increased (from 15.7 to 16.5). This pattern is unprecedented in the history of the survey. In every one of the previous seventeen surveys, low incomes have declined and high incomes have increased, no doubt reflecting the effects of inflation. Although we cannot be sure of the reasons for this year's unique pattern, it may be that recent economic events have served to redistribute income from the less to the more wealthy. (Astin, et al., 1983, p. 4)

Analysis of the CIRP data on American college freshmen provides a partial reflection of the general trend of family income redistribution over the last several decades. Figure 7 shows the first decile, first quartile and median parental incomes in constant 1987 dollars as reported by college freshmen between 1966 and 1988. Between 1966 and 1980, the parental income reported by first decile freshmen declined from over $15,000 to about $10,000. That is, the lowest 10 percent of all American college freshmen came from declining parental real income levels during this period of time. This income figure held nearly constant through 1984, then began to rise. The implication of this finding, especially up to 1980, is that higher educational opportunity expanded for students from families with very low incomes between the mid-1960s through about 1980, but has not continued since 1980 and especially since 1984. The same holds true for the number of students in the first quartile of parental income.

FIGURE 7
PARENTAL INCOME AT DECILE, QUARTILE AND MEDIAN
FOR AMERICAN COLLEGE FRESHMEN
1966-1988



Source: National College Freshmen Norms.

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Profiles of Federal Student Aid Applicants

The universe of financial aid applicants is most nearly approximated by the federal Pell Grant Program applicant file. All applicants for Title IV federal student financial aid have been entered into this common data base since 1978-79. Mortenson (1985) analyzed these data in regard to the family income distributions of dependent and independent aid applicants for the academic years between 1976-77 and 1983-84. (Following 1983-84, the federal reports on which this study was based were discontinued.)

For 1977-78 through 1980-81, the federal financial aid applicant file for dependents showed a decline in the proportion of lowest income applicants. Beginning with 1981-82, however, the proportion of lowest income applicants began to increase. In constant dollars, median family income dropped by 14 percent, from about $28,000 to about $24,000. For independent aid applicants, the results show steady increase in the number of low income applicants. Median family income in constant dollars for independent applicants dropped by 26 percent, from about $6,500 in 1976-77 to about $4,800 by 1983-84.

The evidence here is more complete and conclusive: the average financial resources presented by aid applicants declined between 1980-81 and 1983-84 for dependent applicants, and between 1976-77 and 1983-84 for independent applicants. This decline occurred because of the growth in lowest income aid applicants in the applicant population.

Illinois Aid Applicants

A more complete and focused perspective on the financial aid applicant population is available from the state grant applicant files of the Illinois State Scholarship Commission. Data from these files span the years 1977-78 through 1987-88. Note that in 1982-83, ISSC altered the way in which aid applicant information was collected, a change that brought in additional lower income aid applicants and alters some of the comparability of the data shown in Table 2.

Nevertheless, the data in Table 2 reveal several very important trends. Mean taxable income for Illinois state grant dependent applicants increased from 1977-78, peaked in 1979-80, declined to a bottom in 1984-85, and has increased each year since then through 1987-88. About the same pattern holds up for family assets: increase from 1977-78 to a peak in 1979-80, followed by decline through 1985-86, and then two years of increase. This pattern holds for both father's and mother's incomes, and is also true for independent applicant taxable income and assets.

Generally, the growth in the low income proportion of the total family income distribution appears to have impacted the student financial aid applicant population most notably between 1980 and 1984. Since 1985 income and assets have increased for both dependent and independent aid applicants. Whether this means that the economic condition of the poorer families in America has improved, or that the poorer families have dropped out of higher education cannot yet be determined.

TABLE 2

Illinois Monetary Award Program Applicant Characteristics
1977-78 to 1987-88

(all dollar amounts are constant 1982 dollars)

	Academic Year										
	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
Dependent Applicant Decisions											
Tally	68,263	74,718	93,736	89,215	93,602	119,077	121,512	120,545	120,617	125,754	113,236
% 2 Parents Together	73%	73%	72%	72%	71%	64%	64%	64%	64%	65%	68%
Mean Age Oldest Parent	49	49	49	48	48	47	48	48	48	48	47
Mean Household Size	5.4	5.3	5.3	5.1	5.1	4.5	4.5	4.4	4.3	4.2	4.2
Mean # in College	2.1	2.1	2.1	2.0	2.1	1.6	1.6	1.6	1.5	1.5	1.5
% Own Homes	76%	76%	78%	78%	78%	69%	68%	69%	68%	70%	72%
% With Tax Income	94%	94%	94%	95%	94%	77%	81%	79%	84%	86%	90%
Mean Tax Income	$25,650	$26,275	$27,734	$27,190	$25,604	$19,577	$19,378	$18,839	$20,535	$21,861	$23,946
% With No-Tax Income	21%	21%	19%	20%	20%	37%	33%	43%	34%	39%	DNA
Mean No-Tax Income	$6,206	$5,688	$5,806	$5,389	$5,287	$1,649	$1,538	$1,648	$1,393	$1,413	DNA
% With Fathers Income	69%	68%	70%	69%	67%	54%	56%	54%	58%	60%	64%
Mean Fathers Income	$24,283	$25,235	$26,360	$25,804	$24,418	$13,096	$12,789	$12,456	$13,494	$14,475	$15,789
% With Mothers Income	57%	58%	59%	62%	63%	55%	58%	58%	63%	66%	70%
Mean Mothers Income	$10,802	$10,886	$11,041	$10,715	$10,319	$6,020	$6,234	$6,218	$6,882	$7,269	$8,063
% With Assets	87%	87%	87%	88%	87%	80%	80%	80%	80%	83%	85%
Mean Assets	$48,086	$50,385	$59,403	$58,361	$53,137	$35,151	$34,060	$33,799	$33,494	$34,396	$35,183
% Zero Parent Contrib	42%	37%	29%	28%	25%	24%	27%	27%	26%	23%	21%
Mean Parent Contrib	$2,409	$2,639	$3,547	$3,410	$4,006	$2,824	$2,577	$2,910	$3,080	$3,784	$3,450
Independent Applicant Decisions											
Tally	42,313	43,985	54,261	49,636	61,322	80,107	86,804	86,586	91,088	93,717	87,709
% Married	23%	23%	25%	25%	24%	27%	26%	25%	24%	25%	25%
Mean Household Size	3.2	3.1	3.1	2.7	2.7	2.2	2.2	2.2	2.2	2.3	2.3
Mean Number in College	1.2	1.2	1.2	1.3	1.4	1.1	1.1	1.1	1.1	1.1	1.1
% Own Home	12%	13%	14%	14%	13%	12%	12%	12%	11%	12%	13%
% Tax Filers	49%	48%	42%	39%	40%	DNA	41%	44%	36%	36%	DNA
% With Tax Income	51%	52%	56%	61%	60%	51%	53%	49%	57%	63%	67%
Mean Tax Income	$12,716	$12,008	$12,581	$11,459	$10,782	$4,975	$4,719	$4,444	$5,212	$5,666	$6,382
% With Non-Tax Income	38%	36%	33%	31%	32%	18%	21%	21%	17%	19%	DNA
Mean Non-Tax Income	$5,085	$4,897	$4,679	$4,267	$3,949	$506	$645	$502	$367	$360	DNA
% With Assets	32%	31%	35%	36%	34%	42%	41%	41%	41%	48%	49%
Mean Assets	$8,932	$10,000	$11,464	$10,597	$9,814	$2,510	$2,373	$2,184	$1,992	$2,090	$2,132
% Zero SAI	46%	45%	46%	50%	51%	64%	66%	67%	66%	64%	59%
Mean SAI	$3,137	$3,272	$2,301	$1,460	$1,314	$2,345	$2,144	$2,165	$2,279	$2,447	$1,033

Source: Illinois State Scholarship Commission.

College Enrollment Shifts by Family Income

National College Freshmen Norms

Besides the growth in low income college freshmen in American higher education generally, the CIRP National College Freshmen Norms data indicate that the poorest freshmen have become increasingly concentrated in two-year institutions. Special analyses of the CIRP data files conducted at ACT are summarized in Table 3 for college freshmen from poverty level family income backgrounds. Between 1980 and 1986, the proportion of college freshmen from poverty level family incomes enrolled in public two-year colleges increased from 32.0 percent to 39.7 percent. At the same time, the proportion of poverty level freshmen enrolled in public four-year colleges declined from 32.2 percent to 30.0 percent, and in public universities from 12.1 percent to 7.3 percent. In private institutions, poverty level freshmen increased in two- and four-year colleges, and declined in private universities.

TABLE 3

Distribution of Poverty Level American College Freshmen by Level and Control of Institution 1978 to 1986

	1978	1979	1980	1982	1984	1985	1986
Public Colleges							
2 Year Colleges	37.4%	33.9%	32.0%	36.0%	34.8%	34.4%	39.7%
4 Year Colleges	26.8	33.3	32.2	27.2	30.9	30.7	30.0
Universities	13.1	12.3	12.1	15.6	9.6	11.2	7.3
Subtotal	77.3	79.6	76.3	78.8	75.3	76.3	76.9
Private Colleges							
2 Year Colleges	2.9	3.0	3.4	4.9	6.1	4.7	4.6
4 Year Colleges	14.4	14.4	15.2	13.6	15.9	15.3	16.1
Universities	5.4	3.1	5.1	2.8	2.7	3.7	2.4
Subtotal	22.7	20.4	23.7	21.2	24.7	23.7	23.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National College Freshmen Norms.

These data suggest that college choice for the poorest of American college freshmen had deteriorated by the mid 1980s from the levels of the late 1970s. Increasingly freshmen from the poorest family income backgrounds are concentrated in public two-year colleges, while they have nearly disappeared from public and private universities.

Illinois Aid Applicants

A similar pattern of enrollment redistribution along family income lines has occurred in Illinois among dependent aid applicants during the 1980s. These data, collected by the Illinois State Scholarship Commission as a

routine part of its state grant application system, were analyzed by Mortenson (1986) as a part of a study of enrollment choice problems faced by Illinois grant applicants.

Between 1979-80 and 1985-86, state grant applicants were redistributed across collegiate types along family income lines. At the lower end of the family income distribution, state grant applicants were increasingly applying for state grants to attend public community colleges. Illinois community colleges were attracting an increasing share of state grant applicants from both public universities and private colleges and universities up to family income levels of about $20,000 per year (1978 dollars). (See Figure 8.)

Above about $20,000 per year, public universities were attracting an increasing share of state grant applicants--mostly at the expense of private colleges and universities. For example, in the $20,000 to $25,000 family income range, public universities increased their share of state grant applicants by 4.6 percent, while community colleges lost 1.7 percent and private colleges and universities lost 2.9 percent in this range. At family incomes in the $30,000 to $40,000 range, public universities gained 9.7 percent in market share of state grant applicants, compared to a 1.1 percent loss for community colleges and an 8.6 percent loss for private colleges and universities.

The Illinois data, like the National College Freshmen Norms data, show a redistribution of collegiate enrollments along family income lines across different types of collegiate institutions. Increasingly, lowest income students have been concentrated in the least expensive institutions--public two-year colleges. Illinois students from more middle income family backgrounds appear to have shifted their enrollments from private colleges and universities to public universities.

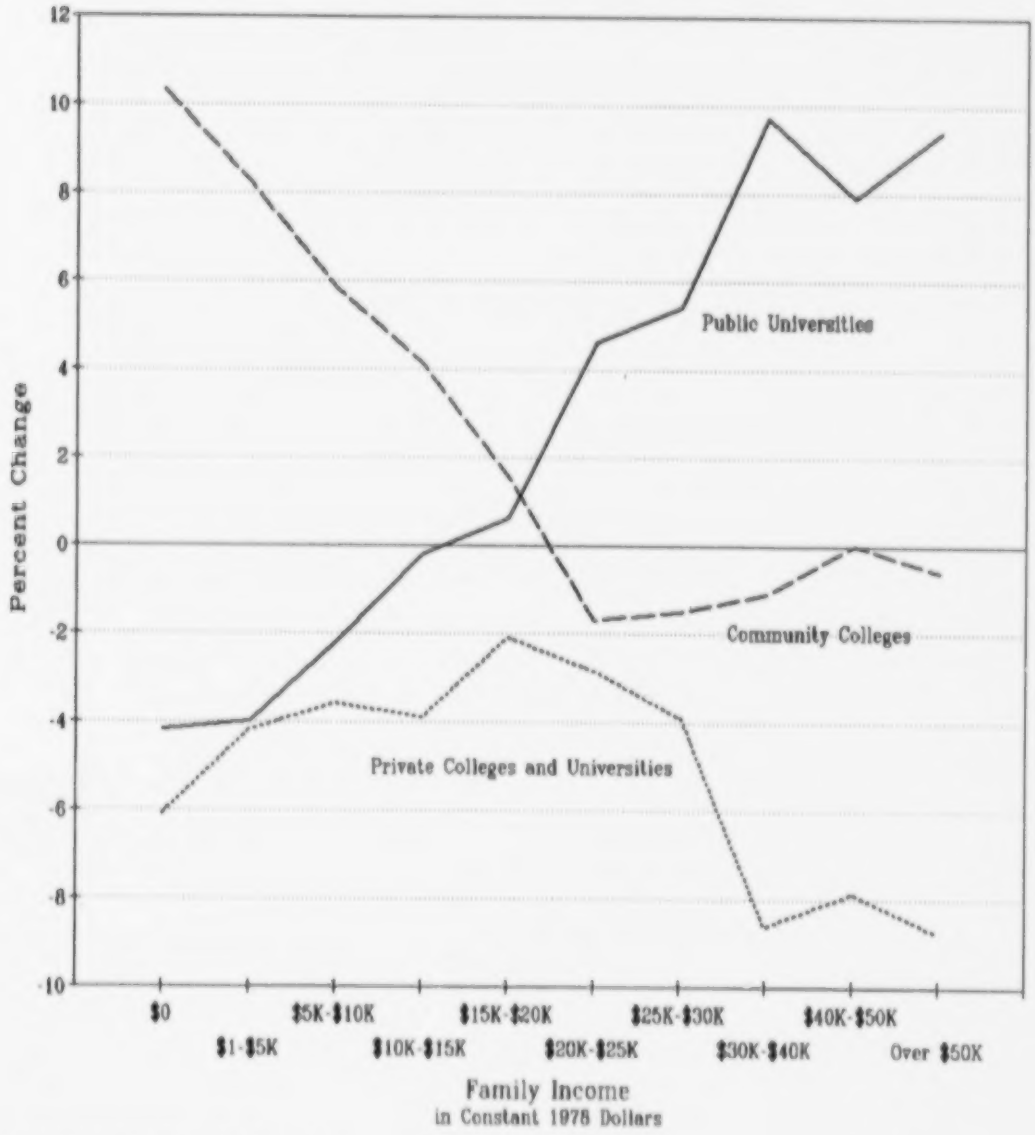
College Attendance Costs and Expected Family Contribution

Finally, this study examined the relationship between family income, expected family contribution through need analysis, college attendance costs, and the need for financial aid for children from different income levels to be able to afford college.

College Attendance Costs

To obtain the benefits of higher education, students incur costs. These costs are of four types: direct, indirect, opportunity, and risk. Direct costs are those expenses faced by an individual that occur only through college attendance, such as tuition, fees, books, and supplies. Indirect costs are living costs faced while going to college, and include food, housing, transportation, and personal and medical care. Opportunity costs are associated with the alternative use of one's resources, such as foregone income while attending college and other uses of one's money, such as better housing or a newer car. Risk is a cost-like consideration faced by the student; that is, what are his or her chances of gaining the future rewards of a college education while these costs are accumulating?

FIGURE 8
REDISTRIBUTION OF DEPENDENT ILLINOIS STATE GRANT APPLICANTS
BY FAMILY INCOME AND COLLEGE TYPE
BETWEEN 1979-80 AND 1985-86



Source: Illinois State Scholarship Commission.

This section examines direct and indirect cost issues faced by students and their families in attending college from the perspective of family income and ability to pay. For the following discussion, the basis for determining a student's need for financial aid is:

College Budget:	Tuition and fees
	+ Books and Supplies
	+ Food and housing for nine months
	+ Transportation to class
	+ Personal and miscellaneous expenses
Family Contribution:	- Parent's contribution
	- Student's contribution
	= Financial need

Note that in student financial aid only direct and indirect college attendance costs are considered in evaluating student need. Neither risk nor opportunity costs are ordinarily addressed through financial aid despite their obvious implications for student enrollment behavior.

Data on average college attendance costs faced by students are available from a variety of sources, none of which is complete or unbiased. Therefore, for the following illustration we will construct average direct and indirect college attendance costs for a full-time undergraduate for 9 months of study at public and private colleges and universities. These data for 1987-88 are shown in the following table, and for each year 1977-78 through 1987-88 in Appendix Table A1.

TABLE 4

National Average College Budgets by Level and Control of Institution for Full-time, Nine Month Undergraduate Dependent Students* 1987-88

Average College Budgets	Public			Private		
	2 Year[a]	4 Year[b]	University[b]	2 Year[a]	4 Year[b]	University[b]
Tuition and Fees	$ 690	$ 1320	$ 1750	$ 3910	$ 6670	$ 8770
Books and Supplies	359	376	381	387	395	414
Food and Housing	2751	2810	3010	2751	3380	4560
Transportation	479	295	295	479	295	295
Personal & Misc.	1744	1372	1372	1744	1372	1372
Total Costs	$ 6023	$ 6173	$ 6808	$ 9271	$12,112	$15,411

*Source: See Appendix Table A1.
[a]Living at home.
[b]Living on campus.

Differences in Families' Abilities to Finance College Costs

Students and their families differ in their abilities to finance the direct and indirect costs incurred by attending college. This variable ability is largely related to family income: families may use savings from prior income, make payments from current income, or they may borrow against future income. But family ability to finance college is also related to age of parents, assets, family size, number of children enrolled in college, and other demands on family resources.

The Uniform Methodology (UM) has provided a widely used guideline for determining a standard expectation for each family to contribute toward their student's direct and indirect college attendance costs. This formula considers many family circumstances, including income and assets, size and number of children enrolled in college. The UM produces an expectation for each family to contribute a certain dollar amount toward the education of its son or daughter based on the family's circumstances.

In the past the student and his or her family could choose to finance the Uniform Methodology family contribution expectation out of future income. That is, one could borrow through the Guaranteed Student Loan Program (GSL) to finance the contribution expected from need analysis of current income and assets, then repay the loan from future earnings. The reduced financial aid resources available to finance student and family need since 1980, however, have altered this picture. Now, eligibility for the federal subsidy for a GSL is determined by need also. Hence, heavily subsidized GSL's are no longer available to families to defer the expectation from current income and assets that results from need analysis. Families that still need to borrow to defer the expected family contribution face higher borrowing costs through more expensive Supplemental Loans for Students (SLS) and Parent Loans for Undergraduate Students (PLUS).

Table 5 illustrates the relationship between parental income and average expected contribution from parental income and assets that resulted from application of the Uniform Methodology to financial aid applicants in 1987-88. Student contributions from income and assets have been excluded from this table, partly because these sums are relatively small but also because such student contributions were not based primarily on actual resources available to the student under the Uniform Methodology. This approach has since been changed in the Congressional Methodology implemented for the 1988-89 academic year. The table was prepared for the U. S. Department of Education from an analysis of a random sample of 82,600 dependent undergraduate ACT financial aid filers for the 1987-88 academic year.

TABLE 5

Parent's Income and Expected Parent Contributions Under the Uniform Methodology of Needs Analysis 1987-88 Dependent Undergraduate ACT Filers

Parents Income	Cntrbtn	Parents Income	Cntrbtn	Parents Income	Cntrbtn
$0-2999	$ 130	$30,000-32,999	$ 2236	$60,000-62,999	9395
$3000-5999	55	$33,000-35,999	2748	$63,000-65,999	9880
$6000-8999	84	$36,000-38,999	3453	$66,000-68,999	10,434
$9000-11,999	63	$39,000-41,999	4047	$69,000-71,999	11,760
$12,000-14,999	155	$42,000-44,999	4714	$72,000-74,999	12,249
$15,000-17,999	325	$45,000-47,999	5545	$75,000-77,999	13,848
$18,000-20,999	600	$48,000-50,999	6160	$78,000-80,999	14,127
$21,000-23,999	934	$51,000-53,999	6999	$81,000-83,999	14,312
$24,000-26,999	1269	$54,000-56,999	7790	$84,000-86,999	15,123
$27,000-29,999	1733	$57,000-59,999	8226	$87,000-89,999	16,844

Families with Resources to Finance Various College Budgets

The preceding data on college costs and family contributions may be usefully combined to illustrate through what family income levels financial aid is important. Table 6 shows the income levels required to finance direct and indirect college costs through need analysis expected parental contributions.

Table 6 also shows the proportion of American children under 18 in 1986 with sufficient family income to finance these college attendance costs out of parental income and assets based on the Uniform Methodology's expected contribution. Census Bureau surveys of family income for families with school age children provide a useful measure of the proportion of children that would require financial aid to finance the college costs shown in Table 4. Using 1986 family income data, about 77 percent of all children would require financial aid to be able to attend a public two-year college--the least costly option; 80 percent of all children would require aid to attend a public university; and more than 93 percent would require financial aid to attend an average cost private four-year college.

TABLE 6

Average Family Incomes Required to Finance
Average Dependent Undergraduate College Budgets by Institutional Type
1987-88

	Public			Private		
	2 Year	4 Year	University	2 Year	4 Year	University
Average College Attendance Costs	$ 6023	$ 6173	$ 6808	$ 9271	$12,112	$15,411
Required Parental Contribution	$ 6023	$ 6173	$ 6808	$ 9271	$12,112	$15,411
Corresponding Parental Income	$49,866	$50,584	$53,624	$65,413	$79,012	$94,804
Percent of Children in Families that Earn This Much or More:						
All families	18.2%	17.6%	15.4%	8.9%	LT 5.5%	LT 5.5%
Married couples	23.0	22.3	19.5	11.3	LT 7.0	LT 7.0
Single females	1.7	1.6	1.3	.5	LT .3	LT .3

Another illustration of the distribution of children in families by family income appears in Figure 9, which shows the number of children under 18 who live in families that will require financial aid to be able to pay direct and indirect college attendance costs unless their economic situation improves by the time the children are ready to enter college.

Figure 9

Distribution of Children by Family Income
Compared to Income Required to Finance College Budgets
1987-88 College Budgets, 1986 Family Incomes

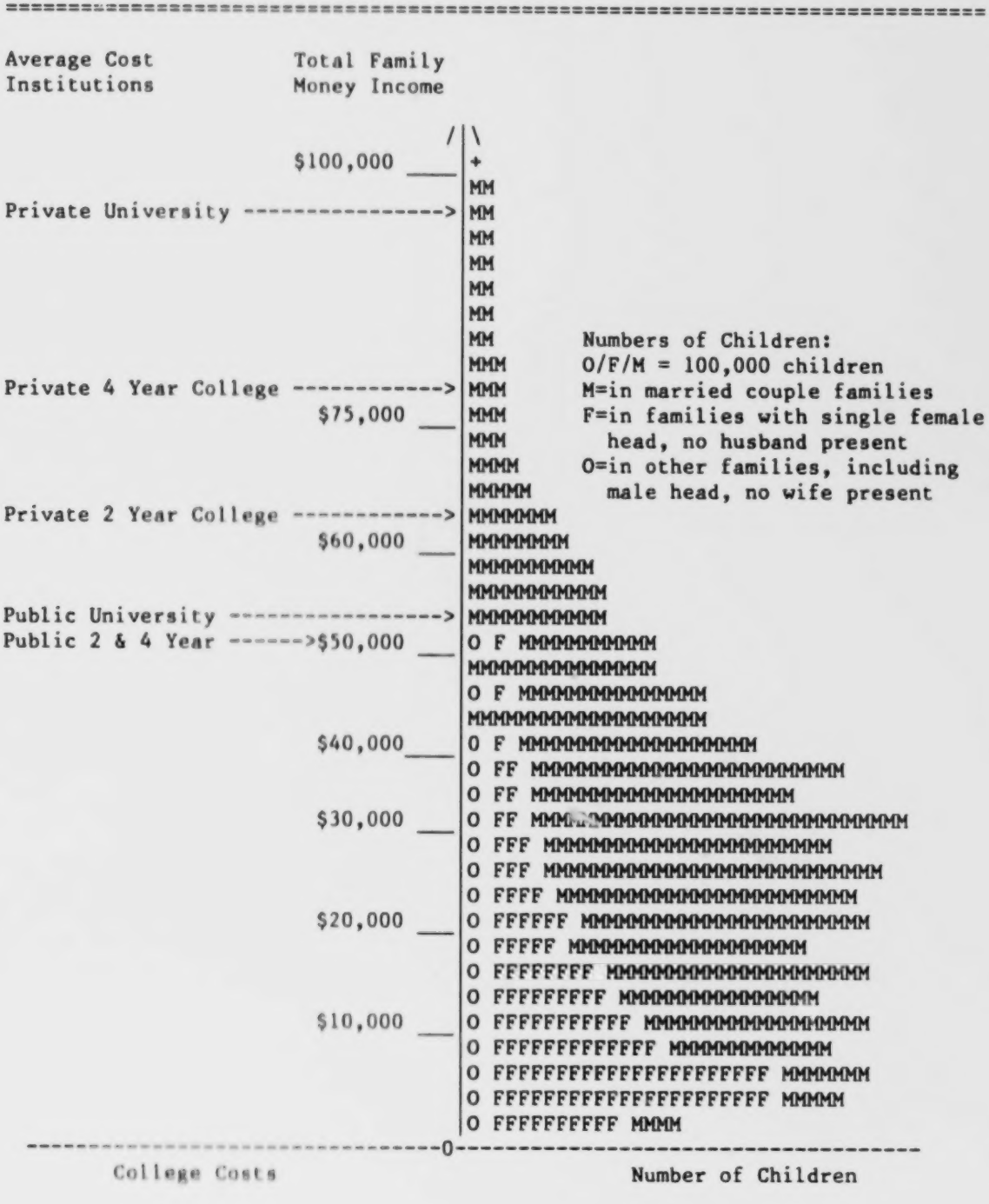


Figure 10 shows the number of children in American families that had sufficient income to be able to pay the direct and indirect costs of attending a public two-year college for each year between 1977-78 and 1987-88. This chart shows that in the last decade no more than one out of four children lived in families with sufficient income to pay the direct and indirect costs of attending a public two-year college. The pattern shown in Figure 10 highlights the impact of economic recession on the fortunes of families raising America's children. In 1981-82--a recession year--only one in ten children lived in families earning enough money to pay for a year of the least expensive collegiate education.

Finally, Figure 11 shows the estimated average family income required through need analysis to finance direct and indirect college attendance costs at public and private two-year and four-year colleges and universities from 1977-78 through 1987-88. For the most recent year shown, family incomes required to finance college range from a low of $49,900 for a public two-year college to a high of $94,800 at an average cost private university.

Summary

The aggregate need for student financial aid is driven by three factors: the number of aid applicants, the income and assets presented by each applicant, and the college attendance costs that they face. This paper has explored one of these, the family resources available to aid applicants.

About 90 percent of the expected family contribution derived from need analysis by ACT Family Financial Statement filers is produced by income; the rest comes from asset assessment. Thus, changes in family income will have an immediate and substantial impact on the requirements for financial aid to assist families in financing direct and indirect college attendance costs.

Since 1970 American families have been redistributed along the income spectrum. There are today substantially more families referred to in this paper as "affluent" that have incomes above 125 percent of median family income. Also, there are substantially more families termed "poor" in this paper with incomes below 75 percent of median family income. This means, of course, that there are substantially fewer "middle income" families with incomes between 75 percent and 125 percent of median family income.

A number of family income issues affect children in the years leading up to college. One of these is family structure: a declining proportion of American children are being raised in two parent families. Married couple families have far greater income than the single female-headed families that are becoming a larger proportion of all families. Concurrently, a larger proportion of children are now being raised in poverty than was the case between about 1966 and 1980. Black and Hispanic children, in particular, are vulnerable: about two out of five now live at or below the poverty line.

FIGURE 10
PROPORTION OF AMERICAN CHILDREN IN FAMILIES
EARNING ENOUGH MONEY TO PAY FOR MINIMUM COST PUBLIC COLLEGE
FROM PARENTAL RESOURCES, 1977-78 to 1987-88

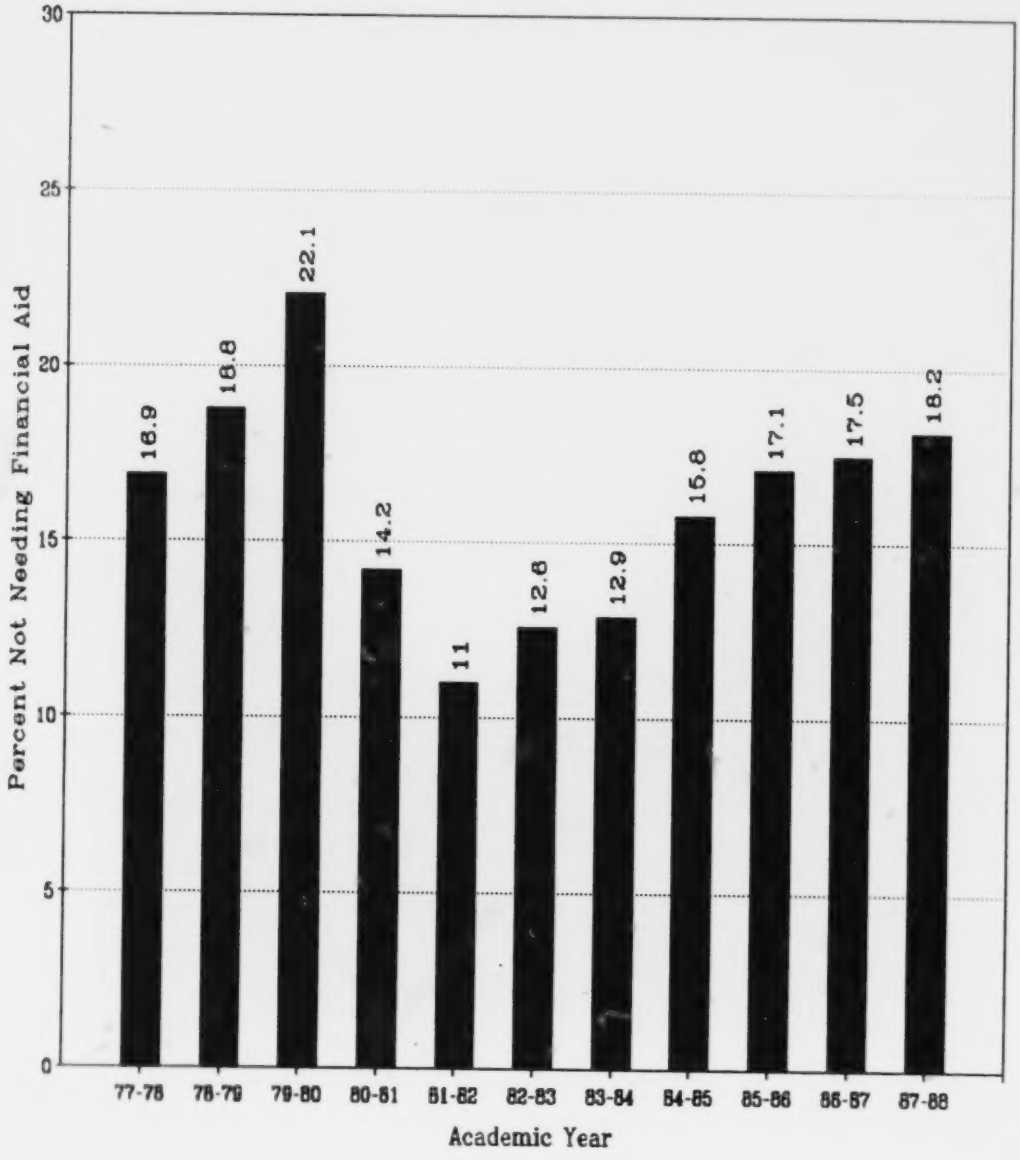
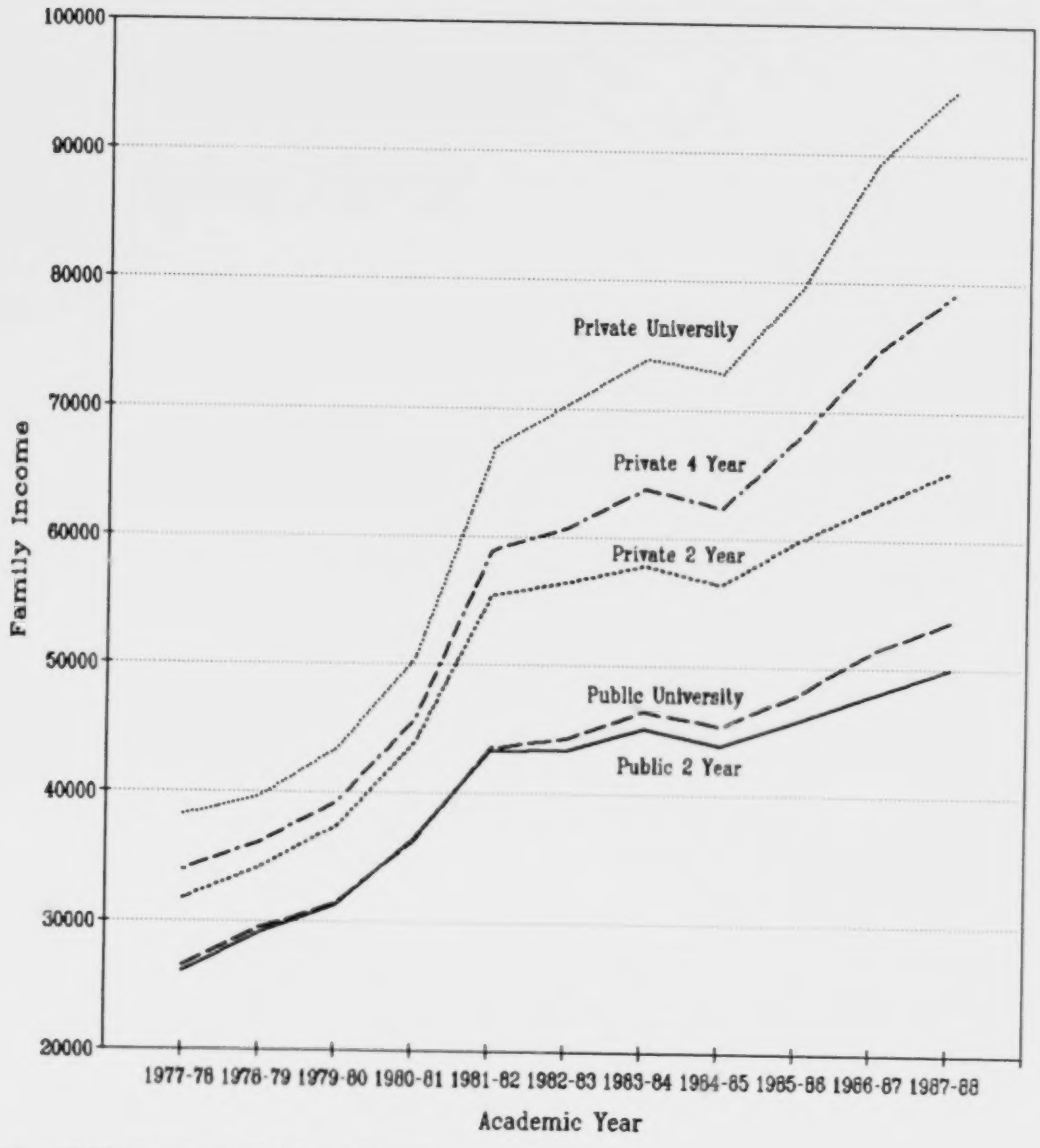


FIGURE 11
ESTIMATED FAMILY INCOME REQUIRED TO FINANCE COLLEGE ATTENDANCE COSTS AT PUBLIC AND PRIVATE COLLEGES 1977-78 TO 1987-88



Source: ACT FFS data prepared for U.S. Dept. of Education.

The redistribution of American families by income has been at least partially reflected in the family income profiles of college freshmen. Between the mid-1960s and the early 1980s, parental income at the first quartile of American college freshmen declined, in constant dollars, from about $25,000 to about $19,000. This decline could have resulted from an increase in children from low income families, from the expansion of student financial aid, or from some combination of these and other factors. In any case, there were more children from low income families enrolling in college until 1980. Then, between 1980 and 1984, the proportion of college freshmen from low income families stabilized. And between 1984 and 1987 this proportion actually declined.

A similar pattern exists among student financial aid applicants. Especially between 1980 and 1985, the mean constant dollar income and assets presented by aid applicants declined. Since 1985 these means have increased.

More than three children in four now live in families that will require financial aid under the expectations of need assessment to be able to pay college attendance costs at the least costly form of higher education, a community college. In the early 1980s, during a period of economic recession, about nine children in ten lived in a family that lacked sufficient income to pay these costs without aid.

In the future, the proportion of children in families that will require financial aid will depend on economic cycles of expansion and recession, the income available to families, and the college costs they face. The aggregate of this need will be presented as the need for funds to achieve enrollment equity objectives of access, choice, and persistence of student financial aid.

More likely than not, these student aid funds will not be available from traditional major funding sources. Federal budget problems and state reluctance to shift higher educational subsidies away from institutions and toward needy students will result in fewer financial aid resources for aid applicants than the aggregate of their need presents. Quite likely the trends of the last decade will continue: enrollment shifts toward less expensive institutions, institutionally funded aid programs to make up for shortfalls in federal and state programs, continued reliance on loans instead of grants, and greater encouragement of families to anticipate the costs of college through savings programs. None of these trends will serve the higher educational opportunity aims of student financial aid for children from poorer families directly or well.

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TABLE A1:
ESTIMATED AVERAGE UNDERGRADUATE COLLEGE ATTENDANCE COSTS
BY CONTROL AND LEVEL OF INSTITUTION, 1977-78 TO 1987-88

	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
A. PUBLIC INSTITUTIONS											
1. 2 Year Colleges, living at home:											
Tuition & Fees (a)	$306	$327	$355	$385	$432	$473	$528	$584	$641	$660	$690
Books & Supplies (b)	$181	$191	$204	$226	$250	$260	$273	$298	$320	$338	$359
Food (c)	$593	$650	$720	$782	$843	$877	$897	$930	$952	$983	$1,023
Housing (c)	$869	$945	$1,060	$1,227	$1,367	$1,466	$1,505	$1,568	$1,630	$1,678	$1,728
Transportation (c)	$268	$281	$321	$378	$424	$441	$451	$472	$484	$465	$479
Personal & Misc (c)	$820	$859	$936	$1,021	$1,122	$1,218	$1,372	$1,465	$1,555	$1,649	$1,744
Total Budget	$3,037	$3,253	$3,596	$4,019	$4,438	$4,735	$5,026	$5,317	$5,582	$5,773	$6,023
2. 4 Year Colleges, living on campus:											
Tuition & Fees (a)	$596	$622	$662	$721	$813	$936	$1,052	$1,117	$1,157	$1,248	$1,320
Books & Supplies (b)	$196	$202	$211	$225	$250	$263	$300	$313	$329	$358	$376
Room & Board (a)	$1,336	$1,405	$1,536	$1,699	$1,888	$2,096	$2,233	$2,401	$2,480	$2,711	$2,810
Transportation (c)	$165	$172	$197	$232	$260	$271	$277	$290	$297	$286	$295
Personal & Misc (c)	$645	$676	$736	$803	$882	$958	$1,079	$1,152	$1,223	$1,297	$1,372
Total Budget	$2,938	$3,077	$3,342	$3,680	$4,093	$4,524	$4,941	$5,273	$5,486	$5,900	$6,173
3. Universities, living on campus:											
Tuition & Fees (a)	$736	$777	$840	$915	$1,042	$1,164	$1,284	$1,386	$1,536	$1,651	$1,750
Books & Supplies (b)	$190	$199	$212	$228	$250	$271	$308	$342	$380	$353	$381
Room & Board (a)	$1,434	$1,512	$1,647	$1,796	$2,037	$2,239	$2,344	$2,513	$2,610	$2,892	$3,010
Transportation (c)	$165	$172	$197	$232	$260	$271	$277	$290	$297	$286	$295
Personal & Misc (c)	$645	$676	$736	$803	$882	$958	$1,079	$1,152	$1,223	$1,297	$1,372
Total Budget	$3,170	$3,336	$3,632	$3,974	$4,471	$4,903	$5,292	$5,683	$6,046	$6,479	$6,808
B. PRIVATE INSTITUTIONS											
1. 2 Year Colleges, living at home:											
Tuition & Fees (a)	$1,706	$1,831	$2,062	$2,413	$2,697	$3,008	$3,099	$3,485	$3,672	$3,684	$3,910
Books & Supplies (b)	$183	$196	$212	$234	$258	$299	$304	$342	$339	$369	$387
Food (c)	$593	$650	$720	$782	$843	$877	$897	$930	$952	$983	$1,023
Housing (c)	$869	$945	$1,060	$1,227	$1,367	$1,466	$1,505	$1,568	$1,630	$1,678	$1,728
Transportation (c)	$268	$281	$321	$378	$424	$441	$451	$472	$484	$465	$479
Personal & Misc (c)	$820	$859	$936	$1,021	$1,122	$1,218	$1,372	$1,465	$1,555	$1,649	$1,744
Total Budget	$4,439	$4,762	$5,311	$6,055	$6,711	$7,309	$7,628	$8,262	$8,632	$8,828	$9,271
2. 4 Year Colleges, living on campus:											
Tuition & Fees (a)	$2,520	$2,771	$3,020	$3,390	$3,855	$4,329	$4,726	$5,135	$5,641	$6,171	$6,670
Books & Supplies (b)	$191	$202	$214	$231	$258	$263	$292	$319	$326	$349	$395
Room & Board (a)	$1,448	$1,555	$1,679	$1,859	$2,094	$2,317	$2,518	$2,714	$2,910	$3,185	$3,380
Transportation (c)	$165	$172	$197	$232	$260	$271	$277	$290	$297	$286	$295
Personal & Misc (c)	$645	$676	$736	$803	$882	$958	$1,079	$1,152	$1,223	$1,297	$1,372
Total Budget	$4,969	$5,376	$5,846	$6,515	$7,349	$8,138	$8,892	$9,610	$10,397	$11,288	$12,112
3. Universities, living on campus:											
Tuition & Fees (a)	$3,240	$3,487	$3,811	$4,275	$4,887	$5,583	$6,217	$6,843	$7,374	$8,118	$8,770
Books & Supplies (b)	$187	$197	$211	$230	$258	$269	$312	$343	$376	$384	$414
Room & Board (a)	$1,793	$1,916	$2,077	$2,291	$2,552	$2,954	$3,090	$3,400	$3,660	$4,263	$4,560
Transportation (c)	$165	$172	$197	$232	$260	$271	$277	$290	$297	$286	$295
Personal & Misc (c)	$645	$676	$736	$803	$882	$958	$1,079	$1,152	$1,223	$1,297	$1,372
Total Budget	$6,030	$6,448	$7,032	$7,831	$8,839	$10,035	$10,975	$12,028	$12,930	$14,348	$15,411

(a) Source: National Center For Education Statistics, US Dept. of Educ.
(b) Source: ACT Budget Survey Questionnaire
(c) Source: California Student Aid Commission, 82-83 survey data.

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